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General Certificate of Education
2013

Applied Information and Communication Technology

Assessment Unit A2 13
assessing
Unit 13: Networking and Communications

[A6J71]

A6J71

TUESDAY 11 JUNE, AFTERNOON

Candidate Num

TIME

1 hour 30 minutes.

INSTRUCTIONS TO CANDIDATES

Write your Centre Number and Candidate Number in the spaces provided at the top of this page.
Answer **all twelve** questions on the paper in the spaces provided.

INFORMATION FOR CANDIDATES

The total mark for this paper is 100.
Quality of written communication will be assessed in questions **2**, **7**, and **10**.
Figures in brackets printed down the right-hand side of pages indicate the marks awarded to each question or part question.

ADVICE TO CANDIDATES

You are advised to take account of the marks for each part question in allocating the available examination time.

For Examiner's use only			
Question	Marks Available	Marks	Remark
1	6		
2	12		
3	8		
4	6		
5	6		
6	8		
7	10		
8	6		
9	6		
10	12		
11	6		
12	14		
Total	**100**		

8008

1   Describe **three** advantages of networking computers.

Advantage 1 _____

_____

_____

_____

Advantage 2 _____

_____

_____

_____

Advantage 3 _____

_____

_____

_____ [6]
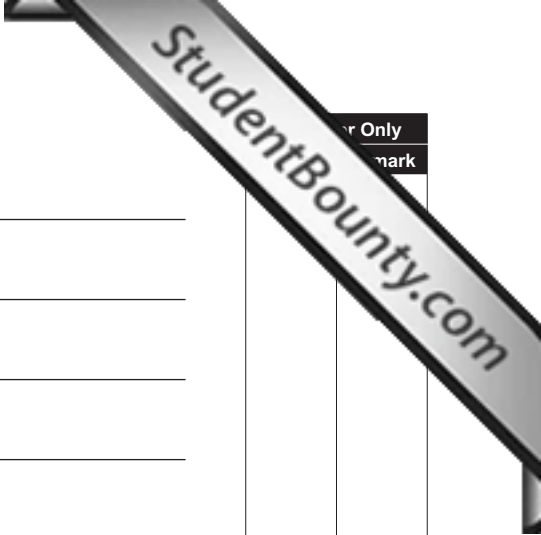
2 **(a)** Using suitably labelled diagrams for each, illustrate the bus based
network system and the star based network system.

BUS BASED NETWORK DIAGRAM

STAR BASED NETWORK DIAGRAM

[4]

(b) Compare and contrast bus and star based network topologies. Your answer should explain why the star network is more widely used than the bus network.

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_____ [8]

3 Choose the correct words from the list below to complete the following paragraphs.

**Physical   address   remote   three   externally   data
global   local   destination   card   MAC   internally**

Computer networks operate on the same principle as the postal system

when delivering messages. Each machine on a network has an

_____ to which _____ can be forwarded. In

order to reach its _____ the package may have to cross

multiple networks before it is delivered. On a computer there are two

possible addressing mechanisms.

_____ addressing occurs _____ within an

organisation. It uses an address that is hard-coded on the Media Access

Control unit – usually part of the network _____. If this

is replaced then the _____ address will change.

Another addressing mechanism is called Internet Protocol addressing (IP).

This is used for _____ addressing.   [8]

4 Describe **three** advantages of using Bluetooth for wireless data transmission.

Advantage 1 _____

_____

_____

Advantage 2 _____

_____

_____

Advantage 3 _____

_____

_____

_____ [6]

5 Each of the following statements is either TRUE or FALSE. Place the word TRUE or FALSE correctly into the space opposite each statement.

A Trojan horse can send a copy of itself to everyone listed in an e-mail address book.	
SPAM consists of useful e-mail messages that a user has requested.	
Outgoing e-mail is handled by a server called the SMTP server.	
Instant messaging (IM) allows you to create a private electronic conversation with another individual.	
Incoming e-mail is handled by a server called the POP3 server.	
Streaming video is a sequence of moving images sent in compressed form over the Internet.	

[6]

6 Identify **two** advantages and **two** disadvantages of using chat rooms in a networked environment.

Advantage 1 _____

_____

_____

Advantage 2 _____

_____

_____

Disadvantage 1 _____

_____

_____

Disadvantage 2 _____

_____

_____ [8]

7 Network systems commonly use both bridges and routers. Compare and contrast the main features of bridges and routers and explain the role played by each if a device in a network is moved from one location to another.

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_____ [10]

8 Describe how the following terms contribute to wireless networking security standards.

SSID (Service Set IDentifier) _____

_____

_____

_____

WEP (Wireless Enhanced Privacy) _____

_____

_____

_____

MAC (Media Access Control) address _____

_____

_____

_____ [6]

9 Complete the table below as shown by matching the most appropriate statements.

1	DNS…..	
2	An example of a URL ….	
3	A proxy server……	
4	Maintaining a central list of IP addresses…..	
5	IP……	
6	An important top level domain…….	

A is http://www.typicalexample.org.uk
B is impractical
C is .com
D is a packet based protocol for delivering data across networks
E is a TCP/IP system used to translate URL domain names into IP addresses
F sits between your computer and the web server whose pages you are accessing [6]

10 Consider the network diagram shown below.

Roaming laptop

PC   PC   PC

Communication
link – Internet

Virtual Private Network (VPN)
server

PC   PC   server
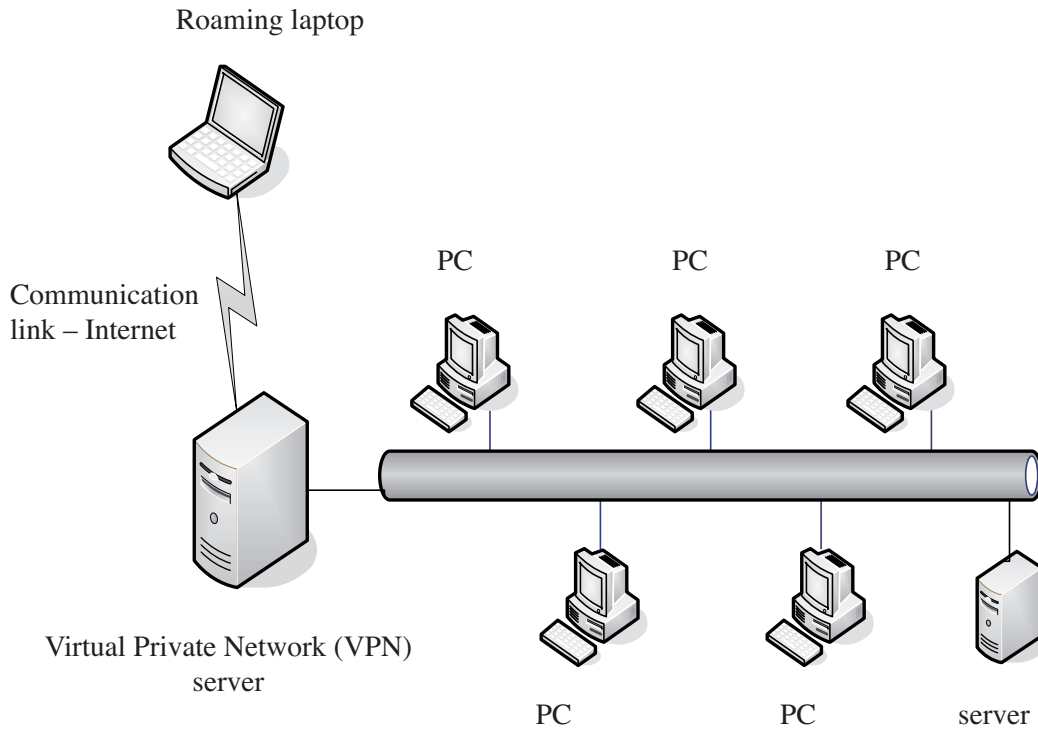
A company has a number of employees who use the PCs in an in-house
client server network. It also has other employees who travel around the
country but need to access the data stored on the company's in-house server.
They do this by using a virtual private network (VPN) across the Internet.

(a) Explain the following terms.

Client _____

_____

_____

_____

Server _____

_____

_____

_____

VPN _____

_____

_____

_____ [6]

(b) Explain how the virtual private network prevents data security issues arising for the employees using the Internet to connect to the in-house server.

_____

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_____ [6]

11 Identify **two** features of each of the following methods used to connect to the Internet.

(a) PSTN (Public Switched Telephone Network – dialup)

Feature 1 _____

_____

Feature 2 _____

_____

(b) ISDN (Integrated Services Digital Network)

Feature 1 _____

_____

Feature 2 _____

_____

(c) Broadband

Feature 1 _____

_____

Feature 2 _____

_____ [6]

12 (a) Network systems which are connected to the Internet are prone to security problems. Name and describe **two** security problems found when accessing the Internet and describe a solution to each problem.

Security problem 1 _____

_____

_____

Security problem 2 _____

_____

_____

Solution to problem 1 _____

_____

_____

Solution to problem 2 _____

_____

_____ [8]

(b) Computer networks which are **NOT** connected to the Internet also have
security issues. Describe **three** ways in which these networks can be
protected.

Method 1 _____

_____

_____

_____

Method 2 _____

_____

_____

_____

Method 3 _____

_____

_____

_____ [6]

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THIS IS THE END OF THE QUESTION PAPER

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